full time winter and summer. This is one of the reasons why most projects on the Khabur have been failures. The overhead costs are very heavy in relation to the land available.

The Government has an irrigation project partly in operation which will irrigate when completed an area of about 100,000 dunums (25,000 acres). Other projects are under study but their execution will be postponed indefinitely since the Government lacks the necessary capital.

To summarize, it would appear that not only all cultivable lands in Jazirah are already cultivated, but that farmers, in search of lands, have started using marginal lands with insufficient rainfall, and unless the price of cereals keeps at the level of last year there will follow in the coming two years a gradual decrease in the area planted, with heavy losses to individual farmers.

## POPULATION OF JAZIRAH

During Turkish rule and up to the French occupation, Jazirah was a wasteland controlled by Bedouin tribes whose submission to the Turkish law was nominal.

### I. The Arab Tribes

The tribes, dominated by Shammar, ruled the land and spoiled it, frustrating all attempts at agriculture. They lived on sheep and camel breeding and charged tribute from merchants for protection, each tribe within its boundaries. Moslem and Christian families from Mardin and Nisibin owned lands around what is now Kamishli, Amuda and Dirbassiya, and they traded with the tribes, buying their wool, samneh, and hides and supplying them with their needs and credit. The ownership of land for agriculture seems to have been incidental to the commercial activities of these families.

The tribal boundaries established during the Ottoman rule are still effective. Shammar claims the right of grazing from the Iraqi border at Tal Koshak to Tal Alu and south to Fadghami on the Khabur. There is another small concentration of a Shammar branch around Derbassiya known as Shammar Ezzor.

The neighbor of Shammar to the west is the Tay tribe. Its lands extend from Kubur el Bid and Kamishli south to Tal Brak. The tribe took to agriculture relatively early and in its area are some of the best lands of Jazirah.

III The Shashans

The Shashans, a Circassian tribe around Ras el Ain, complete the rural population of Jazirah. They migrated to Syria during the Ottoman rule and settled as mercenary soldiers. They are not good at agriculture and their lands are not fertile and do not compare with those of the Kurds.

IV. The Christians

The cities and commercial centers of Jazirah are an extra-ordinary mixture of races and creeds, but they are perhaps more than 80% Christian. This is true of Kubur el Bid, Qamishli, Amunda, Dirbassiya and Hassakeh.

As in the case of the Kurds, the Turkish massacres of the Christians in Mardin and the mountainous country around it started their migration to Jazirah. The Christians reached Jazirah without property or capital with which to begin. They settled mostly in the towns mentioned. A few of them already owned lands, others were traders and had previous relations with the Bedouins and Kurdish tribes. In a relatively short time the towns grew and flourished. The Christinas prospered from commerce before the expansion of agriculture. The tariff differences between Syria and Turkey on such important commodities as sugar, tea, and coffee and the intermingling of the Kurdish population on both sides of the frontier, made the Jazirah towns ideal for an extensive smuggling business.

The town Christians also served as middlemen to the merchants of Aleppo, who provided the money to lend to the Bedouins and Kurds or to buy the sheep, cattle and crops. This work on a commission or partnership basis coupled with the smuggling business proved profitable to the merchants of Jazirah, so that during the last twenty years many of them have become wealthy and have come to own real estate and agricultural lands and machinery without, however, abandoning their commercial activities with the merchants of Aleppo. In fact, the general prosperity and development of Jazirah has increased its need for the credit of Aleppo.

This picture of the Christian population of Jazirah is not complete without mention of the Christian peasants who migrated from the mountain villages and settled in the country. Though Christian and living in villages 100% Christian, some of them are Kurdish in their language, dress and customs. Some other villages are populated

when the wheat crop fails, as it did last year, there is great hardship in all of the Jazirah. Debts remain largely unpaid, the value of land falls off sharply, and interest rates become unbearable

The failure of a crop in Jazirah brings more hardship than is the case in other Mohafazas because Jazirah, with all the money revenue which accrues to it in a good year, has not arrived yet at the stage where it can save a part of this income to use in bad years. All the money revenue is immediately reinvested in machinery and in expansion of the area planted with additonal sums borrowed from the banks or from Aleppo merchants.

The point is reached where further expansion has become difficult, and the situation will become more or less stabilized so that some of the income will be put aside for emergencies in the coming few years. But even when savings reach a high figure, the problem of monoculture is not solved.

Jazirah at present does not produce the necessary vegetables and fruit for its own consumption. It imports them from Aleppo, Homs and Damascus. That is why the cost of living in the town of the Jazirah is one of the highest in Syria. Aside from the price of meat and samneh, everything including room and house rents, is more expensive than in the other big towns of Syria. Even flour is sold to bakers by the town municipalities at the same price for which it is sold in Damascus.

In former times, however, Jazirah produced great amounts of fruit, vegetables and dairy products. Its lands are very well suited to raising cattle and beef, an employment more profitable than wheat growing. A diversification in the use of land will make for a more balanced and prosperous economy in Jazirah. But the Jazirah farmers are not to be blamed entirely for the kind of agriculture prevailing. Circumstances beyond their control, connected primarily with the problems of land ownership and tenure, have largely imposed this type of monoculture upon them. These problems will be discussed in the following section, but it can be said in passing that the farmer cannot be expected to invest money in buildings for cattle raising, or in digging wells to provide irrigation for vegetable growing, or in planting orchards on lands to which he has no title or whose title is subject to constant disputes over boundaries with the neighbors and lately by decree-law 96 with the State.

361 311 365 At present, agriculture extends in an unbroken line from the Turkish and Iraqi borders south to the Rad and Hassaksh, and west to Ras el Ain and midway to Rakka. Qamishli has all the amenities of a fair-sized city with sewage, electricity, asphalted roads, running water, places of amusement, and modern office buildings and houses. The other towns of Jazirah show similar progress but in a smaller way.

454 All this development could not have been achieved without extensive use of capital. It was stated that the original emigrants to Jazirah whether Christians or Kurds, brought very little capital with them. Whatever they have now was made in Jazirah and not brought from outside.

I. Credit to the Bedouin and Kurd

4521 438 The nearest commercial market to Jazirah where credit was available was Aleppo. Aleppo merchants first provided goods shipped to the towns of Jazirah to be smuggled into Turkey. And Jazirah merchants working on a commission or partnership basis made good profits. Some of them specialized in lending money to the Bedouins and Kurds and for them, also, credit was available at Aleppo. They borrowed at an interest rate of 9% and lent at 35-50%. Most of them, however, did not lend money outright as a general practice, but sold goods and especially textiles, coffee and sugar to the farmer against bills maturing at harvest time. The exorbitant interest was added over the price of the goods, and the peasant accepted it as a somewhat higher price and did not consider it as interest. Theis system still prevails at the present time.

II. Credit to the Machinery Owner

452 With the expansion of agriculture and the extensive use of agricultural machinery, credit in much larger amounts became necessary. The farmer using machinery needed two kinds of credit. He needed credit to pay for his machines, and seasonal credit to cover a part of his expenses for wages, seed, fuel, and general expenditures.

In the first years of the War, dealers in agricultural machinery supplied a part of the need by selling on an installment basis for a period of 20 months. But between 1943 and 1948 they demanded cash payment before delivery. In the last four years, they have renewed their credit facilities.

441 It used to be one of the worst roads in Jazirah. At the end of this stretch begins the desert of Deir Ezzor 100 kilometers wide. Some sections of it where rainwater prevents the passage of cars are paved. Nevertheless, the road closes during several weeks in winter.

Another road built crudely by the British Army stretches from Qamishli to Kubur el Bid-Talkochak-Mossul. It is paved with rough stones and it is only used by cars in winter. Beyond Tel Abu a road branches to Deirik and Ain Diwar.

[487] Aside from these, all Jazirah roads are tracks. There are no roads between Amuda, Derbassiya and Hassakeh, nor between Ras el Ain and Hassekeh, nor between the more important villages clustering around the several towns.

The absence of bridges across the Jagjag renders communication more difficult especially in winter when the waters of the river rise. There is a bridge at Qamishli, another one at Tal Brak 40 kilometers south and a third one at Hassakeh. In the relatively crowded villages near Qamishli along both sides of the river, crossings are effected with great hardship by loaded trucks especially in winter.

## II Roads Between Jazirah and Aleppo

361 Aleppo is the nearest commercial center to Jazirah. It is
438 the market for Jazirah grains, wool, samneh and hides. It provides
491 Jazirah with all its needs of cement, textiles and all kinds of imported goods. That is why daily communication between the two regions is vital to Jazirah, but the Government has not judged it yet necessary to construct an all-weather road. Such a road exists in
491 more or less good shape from Qamishli to Hassakeh and to Point 47. From there on, the road to Rakka is closed all during the winter months and travel to Deir Ezzor is interrupted whenever there is heavy rain. The northern and shorter road Qamishli-Ras el Ain-Rakka-Aleppo is also closed in winter for goods and passengers. The shortest road and that which passes through the best developed areas is the one which follows the railway line Qamishli-Amuda-Dirbassiya-Ras el Ain-Tal Abiad-Jarablus-Aleppo. It is 420 kilometers long as contrasted with 465 kilometers for Qamishli-Ras el Ain-Rakka-Aleppo, and 485 kilometers for Qamishli-Hassakeh-Rakka-Aleppo and 565 for Qamishli-Hassakeh-Deir Ezzor-Aleppo which is the usual route followed in winter.

## IV. Telephone, Telegraph and Air Communication

206 509 In 1950 telephone communication became possible with Jazirah for the first time on a commercial basis. Telegraph communication has long been established and an air service connectin Qamishli with Aleppo and Damascus started in 1946, then interrupted by the Palestinian War, has been resumed twice weekly. Fares from Qamishli to Aleppo and Damascus are LS 25 and 50, respectively.

## V. Railway Line Projects

185 Railway lines wholly inside Syria from Jazirah to the interior cities have been suggested by the Gibb report and by the United Nations Economic Survey Mission. They suggested a line from Tal Koshak to Hassakeh and from there to Rakka and Aleppo. Such a line would by-pass Qamishli which is the more important agricultural and commercial center, and would go in a district only newly developed, sparsely populated and not of the fertility of the Qamishli area. It seems that a line starting from Qamishli itself would be shorter and would service a more fertile and populated district. From Hassakeh the line could follow the Khabur as long as possible before veering to Deir Ezzor. This would be longer than the proposed line from Hassakeh to Rakka directly, but it would have the advantage of servicing the Khabur Valley and collecting its crops, whereas, the line Hassakeh-Rakka is completely desert. From Rakka there is only one route to Aleppo.

It is difficult to choose between a policy of road construction and railway lines without detailed study of the economics of both, but, whatever the result of the study, Jazirah needs cheap and easy means of communication.

## COMMERCE OF JAZIRAH

438 441 It stands to reason that the commerce of Jazirah is mainly in its taple prodcuts and in the goods required for the development of its essential industry which is agriculture.

The main crop being wheat, it forms the largest item both in bulk and in value. But the Jazirah merchant plays a secondary role in the handling of this crop. He is sometimes a partner, but more

often an agent of the Aleppo merchant who furnishes the capital and has the necessary warehouses in Aleppo and the commercial knowledge and connections in the Syrian market and abroad to dispose of the crop at the best terms. 438 441

I. The Problem of Storage and Warehouses

The dependance of Jazirah on Aleppo merchants is such that until the present time there is not a single warehouse or silo to store wheat for a few months in all Jazirah belonging to an individual merchant or big farmer. During harvest season, the wheat is stacked in the open near the railway stations and left without cover until it is shipped to Aleppo. The hangers of the stations can only hold a small part of the crop. The Mira built a few depots but it is not known whether they will be put at the disposal of merchants. 438 241

The special conditions of cultivation in Jazirah connected with the problem of credit and land ownership make the transport of wheat from the farms to the stations during harvest season a hectic affair. This is caused by two reasons: in the first place, the farmer is always in need of money and has to ship his crop quickly to Aleppo to sell it, and, secondly, even if the big farmer is not in need of money, he does not feel it is safe to keep his crop in the villages. In most cases, he is only a tenant and it does not pay for him to construct a depot on land, he does not own. Even if he owned the land, he would hesitate to keep his crop away from the market until the winter months when he might need money but might find himself unable to transport his crop because of bad roads.

The logical solution would be to construct warehouses in the towns or near the stations, but, here again, the lack of capital prevents the accomplishment of this job.

The Kurd is the only farmer who keeps a part of his crop on the land. As a good and thrifty peasant, he stores his seeds, the provisions for his family and usually an amount of wheat equal to the seeds he planted. If anything remains, he sells to buy clothes and foodstuffs. The Kurd keeps the extra wheat he has in holes dug in the ground called "jifr". The hole is usually two meters in diameter and 2-3 meters deep. It is lined with "tibn" to keep the moisture away and the wheat remains in a good condition in it for several months. The peasant has a number of these jifrs depending on the 241 251

241 amount he has to store. The jifrs are usually dug around the village
251 to guard them from theft. The condition of the future wheat crop in Jazirah becomes known by the end of March. At that time, if the forcast is favorable, the surplus wheat stored in the jifrs is brought to the market, but if the future crop is considered in a bad condition the wheat remains stored to be planted in the fall.

The second most important item of Jazirah commerce is the summer crops of rice, cotton, sorghum and sesame. They follow the same pattern of wheat and barley.

## II. Cattle and Sheep

439 Jazirah has an active trade in transit shipment of cattle and
231 sheep. Before the last few years, it was itself a provider of sheep.
221 The Bedouin tilled a part of the land and grazed his sheep in summer
233 and fall on the land around the village. In winter and spring he became a nomad again and migrated with his flocks to the south and east. It was customary to pass scores of villages in winter which were completely deserted and the mud houses sealed with one guarding left for the whole village. The expansion of mechanical agriculture reduced the grazing lands considerably and the number of sheep dwindled.

At present, sheep and cattle are imported from Turkey and Iraq. They cross the border on foot and are either smuggled in or pay customs duties. They rest in Jazirah and are fed, then transported to Aleppo by train, or, in springtime, on foot.

## III. Imported Goods

438 The main imports of Jazirah are agricultural machinery and spare parts, textiles, fuel wood and building materials. Foodstuff which is not grown in Jazirah is also imported. Because no statistics are available, it is worthwhile to make a study of the volume and value of Jazirah commerce for the next few years as an indication of the development of the region.

## IV. Commercial Future of Jazirah Towns

The commercial future of Jazirah towns and especially of Qamishli is assured. Jazirah already produced in 1946 17% of the

total Syrian cereals. Only Aleppo was ahead of it with 30% of the total production. (Gibb Report, table 16, p. 28) At present, it is probable that Jazirah surpasses Aleppo in cereal production and with an area approaching that of the Mohafazat of Aleppo, it is potentially more productive because of the Jagjag and Khabur Rivers which make possible a more diverse agriculture. 438

The problem of land ownership is bound to be settled in some way and credit is expanding gradually so that the dependance of Jazirah on Aleppo may diminish with time. The lack of lands and the constant increase in population will force the farmer to turn to intensive cultivation which in turn requires more labor and creates jobs for more people. The towns will benefit from increased production and population and will prosper and grow in their turn. It is logical to anticipate that Jazirah merchants will try to dispose of their crops without the help of Aleppo entrepreneurs. This makes for increased profits and more propserity. It is also reasonable to expect that a small industry based on the processing of agricultural products, such as flour mills, vegetable oil, starch, fruit, and vegetable conserves, will be established in the town of Jazirah. When cotton becomes an established crop, it is economical to gin it in the nearest town and save the cost of transport. The seeds will be needed for planting, for the extraction of oil and for cattle feed. 185

Qamishli is the only town of consequence in a fertile area of 700,000 hectares almost all cultivable in one way or another in the Qadas of Qamishli and Dijla. It is the chief town between Mossul and Aleppo, a distance of some 700 kilometers. Nisibin the older town now in Turkey was alwasy an important commercial center in the old times and Qamishli now has taken its place. It would not be surprising if in another 20 years Qamishli attained a population of 80,000. 361

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rainfall is supplemented by the water brought down from the mountains by its rivers. The principal of these is the Euphrates which has its headwaters in Turkey and flows in a generally southeasterly direction across Syria into Iraq. Together with its most important tributary, the Khabour, which also rises in Turkey, it accounts for 90% of the total annual flow of all Syrian rivers. In the west the largest river is the Orontes which is fed by springs from the Lebanon and Anti-Lebanon ranges and flows northward through the marshy area known as the Ghab into Turkey. Farther south the Barada river, rising in the Anti-Lebanon, supplies life-giving water to the fertile Ghouta oasis around Damascus. In the extreme south the Yarmuk river flows along the Jordanian frontier into the Jordan river. Although the flow of these rivers is highly seasonal, it is on the effective utilization of their waters that much of the future development of Syria's agriculture depends.

*Principal Regions*

Administratively Syria is divided into nine *mohafazats* or provinces, each in charge of a *mohafez* or governor; the province is in turn divided into *qadas* or counties headed by a *kaimakam;* and the county is further subdivided into *nahiyes* or townships in charge of a *mudir*.

Of greater significance, however, are the principal economic regions. Farthest south are the adjoining regions of the Hauran and Djebel Druze. The Hauran plain, an area of rather high but apparently declining fertility, has long been known as a granary, even in Roman times. Its principal crop is wheat, but barley, maize, sorghum and pulses are also important. To the east rises the Djebel Druze, a basaltic dome, where the Druzes, a proud and independent people, eke a bare living from the pockets of fertile soil in their mountains. Here the pressure of population on the land is acute. Agricultural holdings in the Hauran and Djebel Druze are predominantly small. There is little irrigation, and annual rainfall, averaging less than 12 inches, is barely adequate for dry farming. Sharp fluctuations in rainfall frequently make farming precarious. One of the principal problems of this region is the scant supply of underground water even for drinking.

To the northwest of the Hauran lies the higher, rolling Julani plateau stretching toward the Hermon range. This stony region is suitable only for grazing and, to some extent, for orchards. To the north a narrow band

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of cultivation leads to Damascus where semi-desert conditions prevail and rainfall is generally inadequate for dry farming. Thanks to the waters of the Barada river, however, Damascus lies in a fertile oasis, known as the Ghouta. It is pre-eminently an area of orchards and vineyards yielding olives, fruit and nuts. Vegetables, hemp and, more recently, sugar beets are also important crops and extensive dairying is carried on. Damascus, linked with the nearby Lebanese port of Beirut by road and narrow-gauge rail, is one of Syria's two leading industrial centers, the other being Aleppo. Aside from the textile factories which constitute the principal industry, Damascus has plants for the production of cement, glass, vegetable oils, soap, leather and boots and the canning of foodstuffs.

North-northeast of Damascus up to the plains of Homs the country is for the most part rugged and barren, with occasional oases. From Homs to Aleppo stretches an extensive plain which is, along with the Jezireh, the most important agricultural area in Syria. Rainfall is fairly adequate, ranging from an annual average of around 600 mm. (23.6 inches) at Homs to a little less than 400 mm. (15.7 inches) at Hama and Aleppo. The region is the site of the largest completed government irrigation scheme, the Homs-Hama irrigation network, fed from Homs lake; extensive areas are also irrigated by wells, river pumps and water wheels. Northwest of Hama lies the large marshy area known as the Ghab into which the Orontes river pours its water and which the government is just beginning to reclaim. The Homs-Hama-Aleppo area has become the center of cotton and sugar beet cultivation, and it produces roughly one-third of the country's wheat and almost one-half of its barley. West of Aleppo extensive orchards and vineyards produce olives, fruits and nuts. The landholdings of the area are generally large and for the most part cultivated by sharecroppers, who earn a bare living. Around Aleppo mechanized agriculture is developing on some scale.

Aleppo, the principal grain market and commercial center of the country, has also developed considerable industry, featuring cotton ginning and textiles, vegetable oil extraction and soap making, and cement. Homs, with its new sugar factory, a modern textile dyeing plant, several flour mills and a large number of small weaving enterprises, has also achieved some industrial importance.

West of Homs and Hama lies the province of Latakia, facing the Mediterranean. It receives the highest rainfall—up to 1,000 mm. per year—and has a subtropical climate. Its rather narrow coastal plain boasts a

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diversified agriculture yielding tobacco, cotton, legumes, melons, olives and some citrus as well as winter cereals. Its principal city, Latakia, is a rapidly growing port serving as an outlet for the large agricultural output of northern Syria. The coastal plains and the mountains of the province are the country's most densely populated areas.

East of Aleppo lie two distinct agricultural regions, one the belt of rain-fed cultivation stretching along the Turkish frontier and comprising principally the province of the Jezireh, the other, the irrigated Euphrates valley. The Euphrates flows in a southeasterly direction through an arid region but the water taken from the river by hundreds of pumps makes possible extensive cultivation of cereals in the winter and cotton and other crops in the summer. Cultivation is principally by sharecroppers. Deir ez Zor is the largest city in the Euphrates valley. The Jezireh in northeastern Syria has now become the country's principal granary. Once the home of roaming, warlike Bedouins, it was pacified and thrown open to settled agriculture only during the last two decades. Beginning in the second World War, cultivation was rapidly expanded until now the Jezireh produces almost half the country's wheat and a considerable amount of barley as well. Dry farming predominates, with cultivation extending from Hassetche, the capital of the province, where rainfall is marginal, northward to the Turkish border where rainfall is heavy and the region's principal commercial center, the bustling town of Kamichliye, is located. In the valleys of the Khabour and Jagh-Jagh rivers, however, there is some irrigated cultivation, with cotton and rice as the principal crops. In this sparsely settled region, dry farming is carried on in large holdings —in some cases more than 100,000 hectares—and with fleets of tractors and self-propelled combines. The principal problem of the region is transport, for it is served inadequately by a railway running in and out of Turkish territory and by roads and tracks which are impassable for part of the year.

South and southwest of the Euphrates and extending toward Hama, Homs and Damascus lies a large, rough, triangular area, the Syrian desert. This desert or steppe area, although dotted here and there by an oasis, is too arid to support cultivation. Vegetation springs up briefly following the scant winter rains and supports during this time large flocks of sheep and goats tended by Bedouin tribesmen who are also engaged in the breeding of camels. Inadequate water supplies and occasionally severe weather make serious inroads on the flocks from time to time.

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operation, in striking contrast to large private holdings where the most modern machinery is used. Measures to raise the standard of living of this group must be one of the main objectives of any development program; in the first instance this must be effected through education, improved systems of land tenure, and better credit facilities.

*Lessees and landlords.* Some city dwellers have interests in agriculture as leasehold operators of tracts of state domain, or as absentee landlords. Although their interests rarely coincide with the demands of sound long-term farming practices, this segment of the population has been instrumental in opening new farm tracts (such as the Jezireh) and in introducing new crops, thereby contributing much to the national economy. The cultivation of the large absentee holdings is generally left to sharecroppers.

*Sharecroppers.* Each sharecropper is assigned a parcel of land from which, after the apportionment of the crop, he can hope to gain little more than a bare subsistence. In rainfed areas the sharecropper customarily receives rather less than 30% of the crop if he provides only his labor and around 70–75% if he also supplies the working capital; the percentages may be slightly higher in sparsely populated areas, and lower where population pressure is heavier. On irrigated lands the landlord takes 65–75% of the crop if he provides seed and water, and about half if the sharecropper provides the working capital.

In the long run, the position of the sharecropper would be more tolerable if the productivity of the land and his share of it were raised. At present, yearly land assignments may vary, with the result that the cropper has no incentive to improve the land. The restricted area of the assignment and lack of proper equipment, draft animals and money capital contribute to the permanent indebtedness of sharecroppers and their very low standard of living. Measures to improve their lot should include improved tenure status, Agricultural Bank and cooperative assistance in providing working and fixed capital, and resettlement schemes to relieve local land pressure.[1]

### *Agricultural Regions*

In terms of natural conditions and the types of agriculture practiced, Syria can be divided in nine main agricultural regions.

*The Hauran and the Djebel Druze.* The Hauran and the Djebel Druze includes the mountains of the Djebel Druze and the Julani in the south-

[1] See Chapter 3, Sections III and VI, of the Main Report.

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241 west corner of Syria. The cultivated soil varies from fertile shallow chest-
458 nut in the Djebel Druze to the very fertile deep brown of the plains of
311 Hauran. Part of the shallow, reddish-brown soil extending towards the Anti-Lebanon and the basin of Damascus is uncultivable because of its stony character.

The small to medium-size farm is characteristic of this region. Mules and oxen are the customary draft sources, mechanized agriculture being restricted to the few larger holdings. Wheat and barley are the main winter crops; vetch, lentils and sorghum the summer crops. The acreage under irrigation is insignificant. Although now outstripped by the newly opened Jezireh, the Hauran, famous as a granary in the Greco-Roman period, remains a leading cereal-producing area, and the yields in comparison with other areas are high. Excellent grapes and other fruits are produced in the Djebel Druze, but because of unfavorable market conditions and outlets and the lack of processing facilities and storage, much of each harvest is wasted. In the Julani region, where crop production is uneconomical because of the stony character of the landscape, but where good grazing-conditions prevail, double-purpose cattle, for meat and draft, are raised successfully. In this area, land pressure is an urgent problem, especially in the Djebel Druze where many uneconomical small farms hamper progress.

*Damascus basin foothills of the Anti-Lebanon.* The ample layer of fertile reddish-brown soil of the Damascus basin becomes slightly saline in the Merj and towards the swamps of Lake Ateibe, though under drainage and irrigation these areas would probably be suitable for crops. The bottoms of many of the Anti-Lebanon valleys are covered with more or less deep layers of light brown to dark brown soils of moderate to high fertility, with gravelly alluvium bordering the western foothills. Irrigation water is obtained from the numerous streams, and the basin of Damascus is entirely watered by the Barada river coming from the fertile Zebedani valley. The Barada and many of the small streams offer possibilities of storing winter waters for the future expansion of irrigation.

Numerous orchards and vineyards are found in the Ghouta and in the various valleys, producing considerable quantities of fruits, grapes and nuts. Vegetable, hemp and fodder products, and in recent years cotton and sugar beets,[2] form the main agricultural crops of the Ghouta. Wheat and barley are the traditional regional winter crops and beans and peas the summer ones. As a rule farms are of small to medium size; particularly in the

[2] Sugar beet production in 1953 is expected to be over 30,000 tons.

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Ghouta, dairy farming has been developed. The typical Damascus dairy breed is an excellent milk producer and apparently quite resistant to the heat.

*The basins of Jairout, El Dsou and Palmyra.* The third region consists of the brown to grey desert soil. Crop and fruit cultivation, possible only under irrigation, is carried out in small depressions and plots along the bordering mountains where deep layers of very fertile soil occur. During the Greco-Roman period and earlier, a great part of these extensive basins, including the oasis of Palmyra, still famous for its fruits, were prominent producing centers. There are indications that moderate quantities of subterranean water exist.

On some of the best terrain, particularly on the watered alluvial soils, the intensive cultivation of sugar beet, cotton and wheat is possible. At Ain el Barde, for example, record yields are now obtained and reseeding of some of the large natural pasture now used by Bedouins appears to be feasible.

*The western plains and hills.* The gently undulating land northeast and southwest of Aleppo, the plains of Hama and Homs, and the hills east of the Djebel Ansariya may be broadly grouped as a single region. Soil types range widely from the stony and gravelly desert to the terra rossa and chestnut brown. Local productivity varies greatly with soil and rainfall, but taken as a whole this region ranks very high among producing areas.

The main winter crops are wheat and barley; vetch, beans and sorghum are the principal summer crops. Roughly one-third of the country's wheat production and nearly one-half of its barley come from this region. During the last few years, however, sugar beet and cotton have established themselves as cash crops, and in 1953 the region's cotton output accounted for about three-quarters of Syria's total production. Fruit and nuts in substantial quantities are produced in large orchards, sizable vineyards and olive groves in the Homs, Idlib and Aleppo areas. Most of the land holdings are large, cultivated mainly by sharecroppers; small holdings are in the minority and many of these are too small to be economically justified. As a rule, the best land is already cultivated and though large state domains exist, there is very little land available for further crop expansion. Farm machinery is becoming more common, although the area is still cultivated mainly by the *feddan* and other obsolete implements. Dairy farming is practiced around the larger population centers (e.g., Aleppo) but the industry is still in its infancy and pure-bred stock has been imported by only

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a few progressive farmers. Mixed farming and pure sheep farming could be successfully pursued in the eastern part of this region, but here, as elsewhere, the greatest handicap is the land tenure system and unfavorable sharecropper conditions.

*The coastal plains of Tartous and Latakia and the foothills of the Djebel Ansariya.* Along the Mediterranean seashore up to 80% of the deep light sandy soil lends itself well to tree cultivation, particularly to irrigated citrus cultivation.

In general the region is well suited to highly diversified agriculture; the present system is that of winter cereals and vetch and summer crops such as summer legumes, melons and tobacco. About three-quarters of Syria's tobacco is grown in this agricultural district, Abu Riha, Chek el Bint and Tombak being the best known types. The recent cotton boom had its repercussion in this area, particularly as cotton can be grown without irrigation. The region is also well known for its olive groves. Citrus cultivation has gained in importance during the last decade but has only recently begun to receive the governmental attention it deserves.

Manpower is plentiful but land is scarce. The whole region is characterized by small and frequently uneconomic farms of less than 10 hectares. Pressure on the land is particularly evident in the foothills where crops are often farmed on marginal and submarginal land. Manual and animal draft operations are the rule, mechanized farming the exception. Livestock production and dairy farming is insignificant though in many parts of this region they would offer a better yield than does the existing farm system.

*The central and northern plains, including the Jezireh.* The central and northern plains region follows the line of the "fertile crescent", a strip varying in width from 50 to over 100 kilometers, extending in a semi-circle around the Syrian desert. Shallow reddish-brown type soils prevail, light at the fringe of the sub-desert, deeper, darker and more fertile toward the north. Landholdings are generally large and include great tracts of state domain. The size of individual estates runs from a few hundred hectares in the central plains to several hundred thousand hectares in the Jezireh.

Agriculture is extensive, rather than intensive, and the general manpower shortage has accelerated the introduction of the most modern equipment to cultivate and harvest the region's cereals and small grains. This is particularly true of the Jezireh, which, unlike the central plains, has been only recently opened to organized agriculture, and is now Syria's largest wheat and barley producing area; it accounts for over 40% of total Syrian

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wheat production. While the best soils are practically all in production, large areas of medium quality and marginal land are still available and some of these might be cultivated after an appraisal of their productivity. The recent speculative farming wave is responsible for the neglect of such appraisals and far too much marginal land has been broken up and cultivated. Dry farming in this belt (particularly south, east and west of Hassetche) depends greatly on the amount and distribution of the rains.

Although wheat and barley are the principal crops, mention must be made of the cotton and rice grown in the irrigated Khabour valley. The high cotton prices of recent years encouraged speculative cotton growing with varying degrees of success. Rice cultivation has been rather successful, but as it demands the highest water duty the cultivated area has declined somewhat in favor of cotton.

*The northeast corner of the Jezireh.* Toward the region of Deirik the brown soils of the steppe give way to chestnut brown, with rich black soil in the extreme corner of Deirik. The well-watered plains and undulating lands are intersected by the Jagh-Jagh, Khabour and Soutane rivers and their numerous tributaries, making possible irrigation over vast areas. Tractor cultivation is developing rapidly in this newly opened area, although in comparison with the western Jezireh and the steppe belt the region is less mechanized and more densely populated.

Practically all crops could be grown even without irrigation but wheat and barley are the leading winter crops and sorghum and sesame the main summer crops. Rice is an old staple but is now giving ground to cotton. In the region of Deirik good grapes, excellent potatoes, tomatoes and other vegetables are successfully grown but inadequate transport and storage facilities make their economical exploitation difficult. Livestock, particularly sheep, has greatly declined, due to the expanded crop area. The land is very well suited to raising cattle and beef. A diversification in land use would result in a more balanced and prosperous economy.

*The valleys of the Euphrates and Khabour, and the Ghab depression.* Though situated in entirely different regions and consequently showing different physiographical aspects, the large river valleys may be classified together in terms of soil fertility, cultivation methods, land tenure systems, population density and development potential.

In the Euphrates and Khabour valleys, the alluvial soil of deep silt loam has excellent agricultural qualities. The soil in the Ghab marshes, lying astride the Orontes about 40 kilometers east of Latakia, consists mainly of

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heavy clay alluvium in the valley proper and terra rossa and some peat soil along the slopes. Whereas drainage is the main problem in the Ghab, the problem in the Euphrates and Khabour valleys is to extend irrigation so as to double the present cultivated area. The farms vary from rather large holdings of absentee landlords, cultivated by sharecroppers, to very small farm units owned and worked by the farmer himself.

Crop rotation followed in the irrigated area of the Ghab generally takes the form of barley, cotton, wheat and cotton, while the rotation in the Euphrates valley is similar to that in dry farming regions: cotton or summer crop, fallow, winter wheat.

Yields are generally higher than in the rainfed regions but full use is not made of the available water and the irrigation methods are backward in many parts. Though better yielding cash crops have been introduced, the farmer as a rule cultivates only the few traditional crops. In these areas agricultural education could do much to further more economic water utilization and wider crop diversification.

The lands in the immediate vicinity of the rivers are fully irrigated but not fully utilized during the entire year. Hundreds of thousands of hectares on the somewhat higher land on both banks of the Euphrates and in the lower Khabour valley form a potential future reserve, though the capital outlay required to bring them under cultivation would probably have to be furnished by the government.

*The central plains of the Syrian desert.* In the central plains low rainfall and extreme temperatures render agricultural production practically non-existent but the desert is quite important as a natural grazing area (except during the absolutely dry months) for the sheep and camels of nomadic Bedouin tribes. Many parts of the desert, particularly the large depressions, could be better utilized if desert wells were constructed.

### *Types of Soil*

The soils of Syria rank from the world's best to the poorest roughly in the order of (1) alluvial, (2) black, (3) chestnut brown and terra rossa, followed by (4) brown and reddish brown, and (5) grey sub-desert. According to a preliminary survey conducted by an FAO soil specialist the area covered by each of these various types of soil is approximately as follows (in thousand hectares):

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*Grain Milling*

The grain milling industry is spread widely throughout Syria. The Ministry of National Economy records over 360 small enterprises with a total of 311 mills and 257 cylinders, employing about 1,700 workers. Many of these are very small units driven by a diesel engine or by water power. In addition, there are five larger mills in Damascus, Aleppo and Homs fitted with modern machinery and employing a total of about 250 workers.

*Other Industries*

Syria has many minor industries, some of long standing, others new. These include enterprises for the manufacture of paints and colors, biscuits, spaghetti, confectionery, metal containers, furniture, domestic utensils, liquid gas, alcoholic and other beverages, ropes, tiles, cement piping, plastics, cosmetics, cardboard, plywood, pins, nails and springs, and establishments engaged in refrigeration, processing of licorice root, casting of iron, brass and other metals, manufacture of hand and machine tools, repair of motor vehicles and accessories.

Deposits of asphalt near Latakia are being worked by a company which produces raw and processed asphalt and asphalt tiles.

## II APPRAISAL OF INDUSTRIAL CONDITIONS

*Location*

The Damascus, Aleppo and Homs-Hama areas are the main centers of manufacturing industry, a logical location in terms of accessibility of raw materials, communications, water and power services, skilled labor and the proximity of markets. These industrial towns, conveniently situated at a distance of less than 150 miles from the nearest seaports, and connected with these by road, rail or both, are the natural market places for agricultural products and the largest centers of consumption for manufactured goods. Latakia, next in importance, is a rapidly growing port town.